



Serosurveillance Profile in Clinically Suspected Cases of Human Immuno Deficiency Virus with cutaneous manifestations

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Abstract

The HIV infection is associated with several dermatological conditions at some time throughout the course of disease. The present study to evaluate how far these skin manifestations can be considered as indicators of HIV infection. The study was conducted over a period of 2 years in the department of microbiology, Rangaraya medical college, Kakinada. A total number of 205 samples of blood collected from patients who had any kind of dermatological infections were screened for HIV infections as per the NACO guidelines. A total number of 205 serum samples, 105 from the study group were screened in the present study for HIV antibodies results are summarized. Out of the 105 cases tested 35 (33%) are found to be positive for HIV-1 antibodies. None of the samples are positive for HIV-2 infections. Out of 105 cases studied the male and female ratio 1:1.2. In HIV patients with highest (100%) percentage were molluscum contagiosum, herpes simplex, cutaneous tuberculosis and mucocutaneous candidiasis. Borderline leprosy (50%), herpes zoster (44.4%), folliculitis (37.5%), donovanosis (22.2%) and secondary syphilis (16.7%) respectively. The study group can be identified as high prevalence group for early diagnosis and intervention of HIV/AIDS, mainly in developing countries. An early detection of HIV optimizes the chemoprophylaxis for many opportunistic mucocutaneous disorders.

Key Words: Human immuno deficiency virus, Cutaneous Manifestations, Serosurveillance

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Introduction

Human immuno deficiency virus is the plague of the later half of the 20th century. It has changed the face of our society and continues to wreak havoc for many years to come especially in the 3rd world.[1] Emergency of Acquired Immuno Deficiency Syndrome as a pandemic affecting 193 countries has threatened the economic, development, social welfare and public health programs all over the world. [2] The pandemic is highly dynamic and is continuing to spread in every community and country. The global burden of HIV infection is

presently borne overwhelmingly by people in developing countries [3]. There is still hope that the threat of HIV/AIDS pandemic can be confronted and overcome with sincere efforts. Estimation of the current situation and projections for the future burden of HIV/AIDS are crucial to health care planning and for designing prevention and treatment strategies, serosurveillance studies thus form a corner stone for generating information [4].

The vast majorities of HIV infected individuals are asymptomatic and are undiagnosed. In developed regions of the world serotesting is readily available. [5] Whereas in developing regions the health care system is such that, HIV serotesting is either not available or is prohibitively expensive with only about 5 % HIV infected individuals being aware of their disease. [6] This is also true even in symptomatic AIDS cases where diagnosis is commonly made on clinical findings and confirmation may be only at the end stage.[7] The patient with HIV may present with signs and symptoms of any of the stages of HIV infection. No physical findings are specific to HIV infection; the physical findings are those of the presenting infection or illness. Manifestations include the following:

Acute seroconversion manifests as a flulike illness, consisting of fever, malaise, and a generalized rash. [8] The asymptomatic phase is generally benign. Generalized lymphadenopathy is common and may be a presenting symptom. [9]

AIDS manifests as recurrent, severe and occasionally life-threatening infections or opportunistic malignancies. HIV infection can cause some sequelae, including AIDS-associated dementia/encephalopathy and HIV wasting syndrome (chronic diarrhea and weight loss with no identifiable cause).[10] Centers for Disease Control surveillance case definition for AIDS includes many bacterial, fungal, viral infections and non-infectious diseases, some of which may be considered as indicator diseases.[11] In most of these findings related to AIDS are often on the skin and about 90% HIV individuals suffer from one or more skin diseases during the course of their illness.[12] Hence serological testing for HIV antibodies is done in 105 chronic dermatological patients suspected to be infected with HIV as an attempt to evaluate the importance of cutaneous manifestations and how far they will be helpful as markers for the early diagnosis of AIDS.

Materials and Methods

A total of 205 samples were collected over a period of period of 2 years in the department of microbiology, Rangaraya medical college, Kakinada. From this study groups includes 105 selected dermatological cases, attending skin outpatients at Rangaraya medical college and Hospital, Kakinada. The criteria for selection for this group was based on history of exposure, repeated attacks of dermatological manifestations and non responsiveness to routine treatment and a typical presentations of lesions 3ml of blood was drawn into clean screw capped plain vials by venipuncture from each individual under strict aseptic precautions. The patient complete history which included the presenting complaints, the clinical diagnosis, the demographic characters and risk behaviour for the HIV infections were recorded. A pre-test counselling was given and an informed consent was taken before the testing. Then fresh sera were subject to Enzyme Linked Immuno Sorbent Assay [ELISA] test to detection of HIV-1 and the HIV-2 antibodies. The ELISA positive sera were then subjected to another E/R/S and Tridot test and according to the manufacturer’s instructions and the National AIDS Control Organisation (NACO) guidelines.

Results

Total 205 samples were collected over a period of 2 years in the department of microbiology, Rangaraya medical college, Kakinada. Among 205 cases the total positive cases are 105 among them cases screened for HIV-1 positive were 33% and none of the cases for HIV-2. Among them males were 54.28% and females were 45.71%. The most predominant age groups were 21-30 years. HIV seropositivity in various dermatological diseases studied, out of 105 cases highest percentage i.e (100%) observed in Molluscum contagiosum, Herpes simplex, cutaneous tuberculosis and mucocutaneous candidiasis.

Out of 105 cases tested 35 (33%) are found to be positive for the HIV-1 antibodies by all the ELISA, Rapid, simple tests performed. None of the samples are positive for HIV-2 infection. **[Figure -1]**

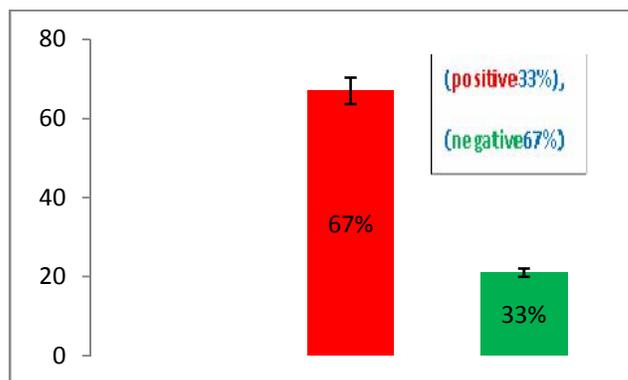


Figure 1: HIV seropositivity in 105 dermatological cases.

Among 105 cases studied 63 were males and 42 were females. 19 out of 63 males (54%) and 16 out of 42 females (45.7%) were positive for HIV antibodies **[Table-1]**.

S.No	Sex	Total	Positive	Percentage%
1	Males	63	19	54.28
2	Female	42	16	45.71

Table 1: Sex wise distribution and HIV seropositivity in study group

Analysis of age wise distribution of these cases and positivity in each age group. 49 of the total cases studied belongs to 21-30 year age group, followed by 26 cases in 31-40 years age group. Incidentally positivity for HIV antibodies is also highest in these 2 groups which is 21 and 8 cases respectively **[Table-2]**.

S.No	Age group	Total	Positive
1	0-10	1	1
2	11-20	14	3
3	21-30	49	21
4	31-40	26	8
5	41-50	9	1
6	51-60	6	1
	Total	105	35

Table 2: Age wise distribution of HIV seropositivity

HIV seropositivity in various dermatological diseases studied out of 105 cases studied 28, 34, 18

and 25 patients were suffering with viral, bacterial, fungal and other diseases respectively. 18 out of 28 viral (64%), 11 out of 34 bacterial (32.4%), 6 out of 18 fungal (33.3%) diseases are confirmed as HIV/AIDS cases. Highest percentage i.e (100%) observed in Molluscum contagiosum, Herpes simplex, cutaneous tuberculosis and mucocutaneous candidiasis, followed by Borderline leprosy (50%), Herpes zoster (44.4%), Folliculitis (37.5%), Donovanosis (22.2%) and secondary syphilis (16.7%) respectively. All other cases grouped as miscellaneous diseases are found to be negative for HIV antibodies. [Table-3]

VIRAL	No. of cases screened	Positive for HIV	Percentage%
1)Herpes zoster	18	8	44.44
2)Molluscum contagiosum	6	6	100
3)Herpes simplex	4	4	100
TOTAL	28	18	64
BACTERIAL	No. of cases screened	Positive for HIV	Percentage%
1)Folliculitis	16	6	37.5
2)Cutaneous tuberculosis	1	1	100
3)Border line leprosy	2	1	50
4)Donovanosis	9	2	22.22
5)Secondary syphilis	6	1	16.67
TOTAL	34	11	32.40
FUNGAL	No. of cases screened	Positive for HIV	Percentage%
1)Mucocutaneous candidiasis	6	6	100
2)Dermatophytes			
a)Tinea cruris	6	Nil	Nil
b)Tinea corporis	3	0	0
3) Superficial Fungus			
a) Tinea versicolor	3	0	0
TOTAL	18	6	33.3
OTHERS	No. of cases screened	Positive for HIV	Percentage%
Miscellaneous diseases	25	Nil	Nil

Table 3: HIV seropositivity in various dermatological diseases studies

Discussion

In the study group 105 sera collected from clinically diagnosed dermatological cases in HIV suspected individuals. Among 105 cases 35 (33%) were HIV-1 positive, none of the samples were positive for HIV-2 infection. A typical presentations and unresponsiveness to treatment are screened for HIV antibodies. Sex wise analysis of the study group shows that male to female ratio in the study group is 3:2. This indicates higher percentage of attendance of

male patients to hospitals. However, the seropositivity is slightly higher (1:1.2) in females which may be due to their more vulnerability to HIV infection, similar to results (1.2:1.8) reported by Rajagopalan et, al (1996).[13]

Age wise analysis of positive cases in the study group indicates highest prevalence in the age group between 21-30 years followed by 31-40 years. The present study is in correlation with Rajgopalan et al. The significant positivity (33.3%) in skin

conditions may herald the need of screening all these cases for HIV antibodies. This view is supported by Cockerell C.J. et al, who in his article “Cutaneous clues to HIV infection- diagnosis and treatment” concluded “Skin is one of the most important organ involved in patients with HIV infection and is the one most readily evaluated by inspection”. [14] It is essential that clinicians be experts in the recognition of skin disorders that indicate the presence of HIV infection are a change in the immune status of one already know to be infected. Hence all the positive cases in our study may be considered as early symptomatic AIDS cases detected and confirmed only by the present study. Similar studies by Ellis P and Johnson D.P. also indicated the necessity of screening for HIV positivity in skin conditions. [15] Our inference is supported by Prose NS who stated in his article “Cutaneous manifestation of HIV infection” that “an understanding of Cutaneous manifestations of HIV infection may aid in the early diagnosis and appropriate treatment of the disease.

Taking into account of skin lesions of viral etiology, out of the 35 HIV seropositive cases, 8 belong to Herpes zoster, giving 23%. However, the studies of Kumarasamy et al and Sivayathoran show 11.7% and 16.1% positivity respectively. Analysing the other way among the 18 cases of Herpes zoster studied, 8 are seropositive (44%), indicating the significance of Herpes zoster in HIV infection, as an indicator disease. [16] Six out of 35 seropositive cases belong to Molluscum contagiosum giving 17.7% which is in par with Matis W.L. et al (10%) and Dower J S et al (10-20%) but lower percentages are reported by Goodman et al (9%), Coldern B M et al (8%) Smith K J et al (8%) and Matis W.L. et al (1%). Four out of 35 sero positive cases are Herpes simplex (11.4%). [17] The results are correlating with the study of Kaplan et al (11%), Sivayathorn et al (10.9%), Coldern et al (8%), Sindrup et al (14%) and Kumarasamy et al (7.7%). Higher percentage is observed by Goodman (22%), Ajit Singh DM et al (17.8%) and Smith K J et al (17%) and lower percentage (3%) is reported by Matis WL et al. [18]

Analysing the second way, six out of six cases Molluscum and four out of four cases Herpes simplex studied are found to be seropositive which may be regarded as early indicators of HIV/AIDS heralding their importance to the clinician. Among the fungal diseases out of 35 HIV positive cases 6 belong to mucocutaneous candidiasis showing 17% positivity which is correlating with the results of Smith et al and Sindrup et al which is 22% in both studies. But Ajit Singh et al, Kumarasamy et al and

Goodman et al reported higher percentage of mucocutaneous candidiasis in HIV positive patients i.e. 25.5%, 45% and 47% respectively. A lower percentage is reported by Muhlemann et al (7%) and Matis WL et al (7%). [19] In the present study six out of six mucocutaneous candidiasis are found to be HIV positive which observation adds strength to the point that mucocutaneous candidiasis can be considered with faith as indicator of HIV infection in suspected cases. Among skin diseases of bacterial origin, out of 35 seropositive cases belong to folliculitis, secondary syphilis, Donovanosis, coetaneous tuberculosis and borderline leprosy respectively. Folliculitis cases have shown 17.7% seropositivity which is correlating with the results of Samet J H et al (19%) but Kumarasamy et al and Sivayathorn A et al and Ajith Singh et al showed a lower incidence (2.1, 5.1 respectively).

Regarding HIV infection in secondary syphilis, one out of 6 cases is positive for HIV antibodies giving 16.6% where as Hutchinson D M et al reported 23% of seropositivity. [20] Considering two cases of Donovanosis; both are found to be positive for HIV. They are couple indicating the hetero sexual transmission and importance of cross checking for HIV in this sexually transmitted disease. The observation that one out of one cutaneous tuberculosis and one out of two borderline leprosy cases though giving 100% and 50% seropositivity respectively cannot be considered as indicator diseases as the number of cases studied are less. The above seroprevalence profile infers that as one third of the selected cases are confirmed to be associated with HIV infection, cases similar to our study group demand routine screening for HIV antibodies. As there is paucity of this type of approach there is wide scope for further research.

Conclusion

It can be concluded that the dermatological manifestations are useful clinical predictors for HIV infection. The study group can be identified as high prevalence group for early diagnosis and intervention of HIV/AIDS, mainly in developing countries. An early detection of HIV optimizes the chemoprophylaxis for many opportunistic cutaneous infections. Therefore, examination of skin disorders, as early diagnosis and management of dermatological problems will improve the quality of life in HIV positive patients. The results of this study indicated that skin problems were common among HIV positive patients.

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